Shortly after midnight on the morning of October 18th, a most wonderful meteor was observed in the southwest. At first it was a bright ball of fire and increased in size and brilliancy with marvelous rapidity.

Oroville, Butte Co., Cal.: a meteor was observed at 4.55 a. m. on the 19th, passing in a direction from northwest to southeast; it was larger and more brilliant than the planet Venus; its flight was rapid, lasting eight seconds.

Keeler, Cal.: a meteor was observed at 7 a. m. on the 19th; it was first seen in altitude 48° and azimuth 135°, and last seen in altitude 40° and azimuth 100°. About three seconds previous to its disappearance it burst into six brightly colored balls, each of which was apparently about ten times the size of the meteor as first seen, and displayed red, violet, green, yellow, dark blue, and orange colors.

Abilene, Tex.: a very bright meteor was observed in the southwest at 6.34 p. m. on the 22d; it moved toward the north and exploded when to the northwest of station, the fragments flying in every direction.

Fort Maginnis, Mont.: a meteor apparently of unusual size passed in a direction from southeast to northwest at 11.20 p. m. on the 30th. On account of the light from the full moon the meteor did not appear very brilliant.

Meteors were also observed on the following dates:

3d, East Norway, Kans. 4th, Topeka, Kans. 6th, Archer and Key West, Fla.; Summit, Mass.; Rappahannock, Va.; Vashon, Wash. 7th, Woodstock, Md.; Clayton, N. J.; Cedar Springs, S. C.; Dale Enterprise, Va. 8th, Archer, Fla. 10th, Archer, Fla. 11th, Webster, Dak.; Woodstock, Md.; Cleburne, Tex.; Cheyenne, Wyo. 12th, Parkston, Dak.; Cleburne, Tex. 13th, Davenport, Iowa; Jacksonborough, Ohio; Dale Enterprise, Va. 14th, Nashua, N. H.; Dale Enterprise, Va. 15th, Somerset, Mass.; Nashua, N. H. 17th, Lead Hill, Ark.; Voluntown, Conn.; Beverly, N. J. 18th, Lead Hill, Ark.; Cahuenga, Cal.; Voluntown, Conn.; Vevay, Ind.; Nashua, N. H. 19th, Cahuenga and Los Angeles, Cal.; Woodstock, Md. 20th, Davenport. Iowa; Somerset, Mass.; Wytheville, Va. 21st, Archer and Manatee, Fla.; Statesville, S. C. 22d, Mount Angel, Oregon. 23d, Clayton, N. J.; Dale Enterprise, Va. 24th, Fort Sully, Dak.; Davenport, Iowa. 25th, Davenport, Iowa. 26th, Little Rock, Ark.; Elk Falls, Kans. 27th, Kalamazoo, Mich.; Cleburne, Tex. 30th, Davenport, Iowa. 31st, New Haven, Conn.; Manatee, Fla.; New Bedford, Mass.

MIGRATION OF BIRDS.

Geese flying southward.—Mobile, Ala., 8th; Fort Mojave, Ariz., 2d, 3d; Fort Bidwell, Cal., 11th, 23d, 25th; Sacramento, Cal., 7th, 10th to 12th, 15th, 19th, 20th, 28th, 31st; North Colebrook, Conn., 27th; Fort Buford, Dak., 20th, 21st; Fort Sully, Dak., 2d, 25th, 29th; Fort Meade, Dak., 4th, 6th; Washington City, 23d, 25th; Charleston, Ill., 21st; Laconia, Ind., 29th; Fort Reno, Ind. T., 14th; Fort Sill, Ind. T., 5th, 13th, 16th; Cedar Rapids, Iowa, 20th; Dodge City, Kans., 4th; Manhattan, Kans., 21st; Ninnescah, Kans., 16th, 17th, 28th; Wakefield, Kans., 3d; Yates Centre, Kans., 24th; Grand Haven, Mich., 28th, 29th; Harrisville, Mich., 13th, 24th, 25th; Lansing, Mich., 26th; Marquette, Mich., 21st; Mottville, Mich., 18th, 19th, 20th, 24th, 25th; Saint Louis, Mo., 23d; Fort Assinaboine, Mont., 9th; Fort Custer, Mont., 12th; Fort Maginnis, Mont., 26th; Crete, Nebr., 19th, 28th; Tecumseh, Nebr., 22d; Clayton, N. J., 26th; Moorestown and New Brunswick, N. J., 25th; Palmyra, N. Y., 24th, 27th; Factoryville, N. Y., 25th; Albany, Oregon, 12th, 13th, 21st, 22d, 31st; East Portland, Oregon, 6th; Linkville, Oregon, 3d, 7th, 12th to 14th, 17th, 22d, 27th, 29th, 30th; Dyberry, Pa., 25th; Ashwood, Tenn., 25th; Cleburne, Tex., 17th; Corsicana, Tex., 24th; Palestine, Tex., 24th to 25th; San Antonio, Tex., 17th; University of Virginia, Va., 1st; Rappahannock Va., 16th, 19th, 22d, 30th; Fort Canby, Wash., 21st; Green Bay, Wis., 2d.

Ducks flying south.—Fort Sully, Dak., 24th; Titusville, Fla., 26th, 28th; Cedar Rapids, Iowa, 20th; Monticello, Iowa, 4th; Wakefield, Kans., 26th; Yates Centre, Kans., 24th; Poplar River, Mont., 5th; Fort Assinaboine, Mont., 9th; Brownville, Nebr., 24th; Kitty Hawk, N. C., 25th, 26th; Tiffin, Ohio, 14th; Palestine, Tex., 4th, 25th, 26th; Silver Falls, Tex., 4th, 25th, 26th; Tatoosh Island, Wash., 2d to 7th, 9th.

Cranes flying south.—Fort Buford, Dak., 16th, 17th; Elk Falls, Kans., 20th; Wakefield, Kans., 13th; West Leavenworth, Kans., 25th, 26th, 28th to 30th; Yates Centre, Kans., 24th; Brownville, Nebr., 20th; Austin, Tenn., 5th; Corsicana, Tex., 13th; Rappahannock, Va., 31st.

Brants flying south.—Fort Madison, Iowa, 14th; West Leavenworth, Kans., 4th, 26th; East Portland, Oregon, 4th; Palestine, Tex., 24th.

MIRAGE.

Mirages were reported from the following places: Yuma, Ariz., 12th; Webster, Dak., 18th, 31st; Richardton, Dak., 27th; Salina, Kans., 4th, 5th, 9th, 21st, 22d, 25th, 26th; Marquette, Nebr., 3d, 16th, 17th, 18th; Galveston, Tex., 4th.

SAND STORMS.

Keeler, Cal.: a severe sand storm began 10.15 p. m. on the 6th, the wind reaching a maximum velocity of forty-two miles per hour at 10.25 p. m. The wind raised great clouds of sand which completely obscured the sky.

Los Angeles, Cal.: a severe sand storm occurred on the afternoon of the 7th, filling the air with dust and sand, and rendering travel difficult. The Sierra Madre range of mountains was obscured from view at the station. Maximum velocity of the wind, thirty-four miles per hour, at 2.30 p. m. The storm was general in this section and quite severe in the valleys, but no damage has been reported.

Fort Grant, Ariz.: a sand storm prevailed throughout the 10th; high easterly winds began 8.30 a. m. and continued, with increasing force, until midnight; maximum velocity, forty-eight miles per hour, from the east.

Sand storms also occurred at the following places: Fort Mojave, Ariz., 6th; Fresno, Cal., 6th, 7th, 11th; Keeler, Cal., 7th to 10th; Fort Thomas, Ariz., 11th; San Carlos, Cal., 11th, 29th.

SUN SPOTS.

Mr. H. D. Gowey, of North Lewisburg, Champaign Co., Ohio, reports having observed sun spots on the following dates: 2d, 3d, 20th to 22d, 24th, 25th.

VERIFICATIONS.

INDICATIONS FOR 33 HOURS IN ADVANCE.

In view of the fact that the multiplication of districts has largely increased the work of the verifications officer so as to materially delay his reports, and also interfere with other special work devolving upon him, the Chief Signal Officer has decided that hereafter the percentage of successful predictions be based on one only of the tri-daily indications. Since the 10 p. m. indications is the the only one which includes predictions for the entire country, in connection with which the temperature and weather signals are displayed, the percentages will be calculated therefor. An additional reason for the selection of the 10 p. m. indications is the fact that an examination of twelve consecutive months' percentages shows the average of the 10 p. m. indications to vary less than one-tenth of one per cent. from the general means. In order to make the data comparable, the official percentages for the current fiscal year have been recomputed, so as to show the detailed percentages with reference to the 10 p. m. indications.

The following paragraphs from Instructions No. 66, current series, are given in explanation of the method of verifying the indications:

In determining the percentage of verifications of predictions, the conditions occurring during the twenty-four hours predicted for, as shown by the charts for the 2d, 3d, and 4th reports following the report on which the prediction is

made, will be carefully examined by the verifying officer, who will ascertain the amounts, in tenths, to which the conditions predicted for each state or territory, or part of state or territory, have prevailed in it. The area for which the prediction is made will be considered in verifying weather and temperature. In giving weight to the three maps which are used in verifying the indications, a failure on the first map will lower the verifications four-tenths (.4), and on each of the succeeding maps three-tenths (.3), each. The barometer indications will not be verified, as the prediction is left optional with the Indications Officer.

In determining the percentage of verification of predictions of wind direction the verifying officer will note the direction reported on the three charts to which the prediction applies, and will ascertain whether the directions observed fulfill the predictions, as follows: If the direction predicted is observed at one-tenth of the observations reported from the stations on the three charts under consideration the percentage of verifications will be rated one (1); more than one-tenth and not more than two-tenths (.2), and so on up to ten.

In determining the total monthly percentages of verifications for all the predictions, the percentage of verification for each state for weather will be multiplied by five; for temperature, by four; and for wind direction, by one; and the sum of all these will be divided by ten.

In applying the foregoing rules, a prediction of fair weather will be construed to indicate an absence of rainfall.

When fair weather is predicted, it will be verified by consulting the three maps separately, and any precipitation (rain or snow) falling at a station on one map will reduce the percentage for the area in such proportion as has been described above; that is, failure on the first map is valued at four-tenths (.4), and on the other maps at three-tenths (.3) each.

The term, "local rains" or "local snows," will be construed to mean that rain or snow will fall, as shown on the three charts, at half the stations; but in verifying such prediction the three maps will be consulted as a whole, and proportionate reduction will be made for any rainfall or snowfall occurring at more than half the stations during the twenty-four hours. A proportionate reduction will be made when rain or snow falls at the same station at two different periods, except the rain is falling at the time of observation.

A simple temperature prediction of "higher," "lower," or "stationary," will be verified by the last map only. The term "stationary temperature" indicates a change of three degrees or less from May to August, inclusive; five degrees from November to February, inclusive; and four degrees for the remaining months. During the months when maxima and minima temperatures are received, these maps will, in case of cloudy weather, or rain or snow, be consulted in verifying periods which end at 7 a. m. or 3 p. m., respectively.

The prediction of north winds will include northwest, north, and northeast winds; the prediction of northeast winds will include north, northeast, and east winds; the prediction for east winds will include northeast, east, and southeast, and so on for the other quadrants.

Hereafter in making wind predictions, the Indications Officer will designate whether the force will be light, fresh, brisk, or high. A light wind will be one of eight (8) miles or under; a fresh wind, from six (6) to fourteen 14; a brisk wind, from twelve (12) to twenty-four (24); and a high wind, from twenty (20) miles upward.

In verifying the wind, equal weight will be given to direction and velocity.

These rules were followed in verifying the indications for September and October, 1887, and will be hereafter observed in verifications work. The percentages for July and August, as given in the accompanying table, will be taken as the official statement in place of the figures previously published in the REVIEW for those months:

Percentages of indications verified, July to October, 1887.

States.	July.	August.	September.	October.
Maine	57.80	73.66	69.11	75.35
New Hampshire	62.63	72.58	69.44	72.06
Vermont	63.98	74.46	73.89	77.39
Massachusetts	66.67	73.12	68.44	74.32
Rhode Island	77.15	69.09	68.99	71.35
Connecticut	70.70	69.62	68.43	73.10
Eastern New York	61.56	71.77	68.22	71.10
Western New York	63.71	67.20	72.22	76.74
Eastern Pennsylvania	67.74	66.67	80.12	77.10
Western Pennsylvania	58.06	73.66	72.11	80.90
New Jersey	70.97	71.24	73.56	76.55
Delaware	72.10	68.82	74.44	77.68
Maryland	65.05	65.86	75.44	77.42
District of Columbia	66.13	63.17	74.56	74.26
Virginia	68.28	66.67	70.00	78.16
North Carolina	77.42	72.04	74.11	78.65
South Carolina	74.46	72.58	77.78	80.96
Georgia	73.12	76.08	69.33	76.71
Eastern Florida	73.39	74.19	77.86	71.16
Western Florida	74.73	66.13	77.54	65.42
Alabama	70.97	71.02	69.67	77.90
Mississippi	68.82	76.34	73.56	70.23
Louisiana	72.58	75.00	77.53	73.52
Eastern Texas	85.75	83.87	73.79	72.58
Arkansas	70.16	79.84	72.56	76.13
Tennessee	67.20	73.39	64.56	78.42
Kentucky	70.16	75.81	65.00	81.29
Ohio	72.85	77.15	68.33	78.84
West Virginia	79.03	73.39	72.47	81.19
Indiana	71.51	72.31	67.78	82.48

Percentages of verifications verified, &c.—Continued.

States.	July.	August.	September.	October.
Illinois	72.31	68.49	65.56	79.97
Lower Michigan	75.54	73.39	68.44	73.51
Upper Michigan	59.95	65.32	68.22	74.64
Wisconsin	69.09	69.62	66.78	76.37
Minnesota	65.86	72.04	60.44	71.08
Iowa	65.86	70.70	67.79	79.84
Kansas	63.98	67.74	65.78	86.42
Nebraska	56.72	69.09	62.67	83.65
Missouri	72.04	71.51	65.11	79.45
Colorado	63.17	68.82	64.33	78.81
Eastern Dakota	56.72	65.65	62.00	77.64
By elements:				
Weather	68.17	69.59	62.25	78.09
Wind	65.50	68.94	77.02	79.29
Temperature	72.20	75.02	71.11	73.71
General average	68.62	71.18	70.13	76.46
PACIFIC COAST:				
Southern California*	92.47	.....	79.38	84.83
Northern California*	91.13	.....	79.60	83.67
Oregon*	84.95	.....	65.91	73.28
Washington Territory*	77.96	.....	63.18	69.62
By elements:				
Weather	94.76	.....	72.29	86.32
Wind	79.44	.....	73.95	75.36
Temperature	85.68	.....	69.69	68.51
General average	86.63	.....	71.98	78.10

* No indications issued during the month of August.

NOTE.—Seven per cent. should be added to these verifications when compared with those for previous years, to represent the increased period for which they are made, 33 instead of 24 hours.

The predictions for all districts east of the Rocky Mountains for September, 1887, were made by 1st Lieutenant Robert Craig, 4th Artillery, Acting Signal Officer and Assistant; the verifications of temperature up to and including the 10 p. m. report of the 19th, and the wind force up to and including the 10 p. m. report of the 2d, were made by 2d Lieutenant F. M. M. Beall, Signal Corps, Assistant; the remaining verifications were determined by 2d Lieutenant John P. Finley, Signal Corps, Assistant.

The predictions during October were made by Junior Prof. H. A. Hazen; the verifications were determined by 1st Lieutenant Robert Craig, 4th Artillery, Acting Signal Officer and Assistant. Those for the Pacific coast during September and October were made by 2d Lieutenant J. E. Maxfield, Signal Corps, Assistant; the verifications for September were determined by 2d Lieutenant John P. Finley, Signal Corps, Assistant, and for October by 1st Lieutenant Robert Craig, 4th Artillery, Acting Signal Officer, Assistant.

CAUTIONARY SIGNALS, OCTOBER.

Of the total number of cautionary and storm signals ordered during October, 1887, it was practicable to determine the justification or failure of ninety-four, of which fifty-four, or 57.45 per cent., were fully justified. Of the above, eighteen were ordered for cautionary signals; number justified, nine, or 50.00 per cent. Seventy-six storm signals were ordered; number justified, forty-five, or 59.21 per cent. Total number of direction signals ordered, ninety-nine; justified, eighty-nine, or 89.90 per cent. Of these, thirty-six were ordered for easterly winds; justified, thirty-one, or 86.11 per cent. Number of signals ordered for westerly winds, sixty-three; justified, fifty-eight, or 92.06 per cent. Number of signals ordered late, *i. e.*, after justifying velocity had begun, five.

In three instances winds were reported which would have justified the display of cautionary and storm signals, but for which no signals were ordered.

COLD-WAVE SIGNALS.

Total number of cold-wave signals ordered, the justifications of which were determined, ninety-five; number justified, thirty-one, or 32.63 per cent.

CAUTIONARY SIGNALS, SEPTEMBER.

Of the total number of cautionary and storm signals ordered during September, 1887, it was practicable to determine the justification or failure of forty-six, of which twenty-eight, or 60.87 per cent. were fully justified. Of the above, thirty-eight were ordered as cautionary signals; number justified, twenty-six,

or 68.42 per cent. Eight storm signals were ordered; number justified, two, or 25.00 per cent. Fifty-five direction signals were ordered; justified, fifty, or 90.91 per cent.; of these, twenty-eight signals were ordered for easterly winds; justified, twenty-four, or 85.71 per cent.; twenty-seven signals were ordered for westerly winds; number justified, twenty-six, or 96.30 per cent., and five storms occurred for which no signals were ordered. No signals were ordered late, *i. e.*, after the verifying velocity had begun.

The following rules adopted for determining the justification or non-justification of signals are given:

The signals ordered will indicate the degree of the intensity of the storm and direction of the wind during the display. The degree of intensity will be indicated by two different signals, to be designated, respectively, the "cautionary signal" and the "storm signal," and the direction of the wind by four different signals, to be designated after the four quadrants, viz., "northeast," "southeast," "northwest," and "southwest."

The following are the wind directions which should occur at any station to justify the display of a direction signal. For signals for an easterly quadrant, winds from any direction from northeast to south, both inclusive. For signals for a westerly quadrant, winds from any direction from north to southwest, both inclusive.

The justification of wind signals will be determined by districts, all signals (one or more) displayed in one district at the same time counting as one signal.

Percentages of justifications will be computed separately for each of the following classes of signals, viz., cautionary signals; storm signals; signals for easterly winds; signals for westerly winds.

Cautionary and storm signals will be justified by the wind velocities occurring during the displays, according to the following rules:

A signal will be recorded as justified if the wind attain a justifying velocity at one or more stations in the district.

A direction signal will be recorded as justified if the direction indicated by the signal occurs, during the display, at one-half or more of the stations in the district.

The statement showing the percentages of signals justified, will also show the number of storms for which signals were not ordered and the number of signals ordered late.

A storm without signals will be recorded whenever a justifying velocity without signals is reported from two or more stations of the same or contiguous districts during a period of eight hours, or whenever said velocity, without signals, is reported from the same station once or more during each of two or more consecutive periods of eight hours.

When a signal is justified but the wind attains a justifying velocity before the signal is ordered, it will be recorded as late.

LOCAL VERIFICATIONS.

The following is from the report of the "Michigan State Weather Service" for October, 1887:

Weather and temperature signals are now displayed in one hundred and thirty-five towns in the state, and on the baggage-cars of twenty-five trains on seven principal railroads of the state.

The percentage of verification of weather signals for October is as follows (the verification is taken from reports of displaymen furnished this office monthly): temperature, 85.6 per cent.; weather, 85.2 per cent.; temperature and weather, 85.4 per cent.

The percentage of verification of weather predictions for October on the D., G. H., and M. R'y., is 87.3 for weather and 82.7 for temperature; on the C. & G. T. R'y., weather, 83.7, and temperature, 84.0; P. H. & N. R'y., weather, 86.3, and temperature, 83.7; M. C. R'y, for weather, 85.3, and for temperature, 84.0; G. R. & I. R'y, weather, 81.3, and temperature, 84.0; C. & W. M. R'y, weather, 83.0, and temperature, 82.7.

There was one cold-wave signal displayed on the 4th at 11 a. m., and lowered at 9 a. m. of the 5th. Four stations report the signal verified by a fall of 15° or more in the temperature.

The following is from the October, 1887, report of the "Minnesota Weather Service:"

Verifications of weather signals for Minnesota were 83 per cent. for weather and 74 per cent. for temperature.

The following is from the "Tennessee State Board of Health Bulletin" for October, 1887:

The percentage of verification of weather and temperature predictions, furnished daily from the Signal Office at Washington to the various stations in the state during the month, was for the state: weather, 86.3 per cent.; and temperature, 86.2 per cent.

ERRATA.

September, 1887, REVIEW, page 240, in the table of the extreme monthly ranges of barometer, Rio Grande City, Tex., should read Brownsville, Tex.

In the table of "Miscellaneous meteorological data," page 262, the mean reduced barometer at Eastport, Me., 29.92, should read 30.01.

On page 253, under the heading of "Drought," Rappahannock, Caroline Co., 30th, should read Rappahannock, Fauquier Co.

In the table of "Meteorological record of voluntary observers and Army post surgeons," on page 264, the monthly mean temperature at Cedar Rapids *a*, Iowa, 47.8, should read 63.2.

July, 1887, REVIEW, page 208, the departure from the normal precipitation, for the district of New England, —0.96, should read +0.96.

STATE WEATHER SERVICES.

The following extracts are republished from reports for October, 1887, of the directors of the various state weather services:

The "Alabama Weather Service," P. H. Mell, jr., of the Agricultural and Mechanical College, Auburn, director:

The first weeks of October were mild and pleasant weather, with but little rain in any part of the state. Heavy rains were produced on the 17th to 20th by the low pressure that prevailed at Mobile and along the Gulf during this period. Precipitations were quite frequent during the last two weeks of the month until the low pressure on the Gulf was forced out by the high pressure that swept across the country during the 25th, 26th, and 27th. This cyclonic disturbance was followed by a cold wave on the 29th and 30th of some severity. This cold wave produced a heavy frost throughout the state on the morning of the 31st. Ice was also formed at the same time. This was the first killing frost of the winter. Light frosts were reported on the 12th, but little damage was done. For the month of October the temperature was 5°.2 below the average, and the precipitation was 0.31 of an inch below the average.

Summary.

Temperature (in degrees Fahr.).—Monthly mean, 61°.9: highest monthly mean, 69°.3, at Pine Apple; lowest monthly mean, 46°.6, at Tuscumbia; maximum, 87°.2, at Mobile, on the 10th; minimum, 22°, at Gadsden, on the 31st; range for state, 65°.2; greatest monthly range, 61°, at Gadsden; least local monthly range, 42°, at Selma. Frosts, 12th to 15th, 22d and 31st.

Precipitation, including melted snow (in inches).—Average for the state, 2.85; greatest, 4.95, at Tuscumbia; least, 0.08, at Pine Apple.

Winds.—Prevailing direction, northeast.

The "Monthly Review of the Illinois Weather Service," Col. Charles F. Mills, director:

The temperature for the month was considerably below the normal in all parts of the state. The greatest departure was at Greenville, where it was 6°.8 below the normal of nine years. Other remarkable departures were at Golconda, 6°.4 below the normal of nine years; at Aurora, 6°.2 below the normal of nine years; at Sycamore, 6°.1 below the normal of seven years; at Springfield, 5°.9 below the normal of nine years, and at Chicago, where it was 5°.8 below the normal of sixteen years. In no part of the state did the temperature reach the normal for the month. The early part of the month was warm for the season, but the latter was much colder than usual. The coldest day in the northern and central divisions was the 25th; the warmest for the state was the 7th. In the southern division, the coldest day was the 30th.

The average temperature for October was 50°.4, which is 8°.8 below the normal of the past thirteen years, and only once in that time has the October mean been lower, in 1875, when it was 49°.8, which was the coldest, while October, 1881, with a mean of 71°.2, was the warmest in the above period. The average temperature of the northern division was 46°.5; for the central, 51°.4, and for the southern, 53°.3. The highest mean temperature reported was 62°.3, at Benton, Franklin Co.; the lowest was 41°.9, at Prairieville, Lee Co. The highest temperature reported was 92°, at Oquawaka, Henderson Co., and the lowest, 12°, at Cedarville, Stephenson Co., giving an absolute range of 80°.

The remarkable drought of the season continued through the month unabated. In four places only in the state did it reach the normal, and, in most places, it was far below it. The 2d, 9th, 10th, and 23d were the days on which rain fell generally, especially in the northern and central divisions, the southern was far less fortunate all through the month, its deficiency being much greater than that of either of the other divisions. The northern division got most, the central next, and the southern least of all, the rainfall of the former being more than twice that of the latter. The greatest amount reported was 3.59 inches at Aurora, and the least was 0.30 of an inch at Jacksonville, Morgan Co. The average for the state was 1.49 inches, which was 2.04 inches below the normal of the last ten years.

The "Indiana Weather Service," Prof. H. A. Huston, of Purdue University, Lafayette, director:

The monthly mean barometric pressure over the state of Indiana during October was slightly above the normal pressure for a number of years. This was evidently caused not only because a greater number of high barometric areas in passing eastward brought their central pressure very near Indiana, but also because a smaller number of low barometric areas, when passing eastward, moved so far north or south from the state that only the isobars more distant from the centres of such low areas reached Indiana, or, only slight depressions or troughs, joining two low areas, in British America and over the Gulf of Mexico, respectively, affected the barometer slightly and for a short time only.